

ABSTRACT

The present invention provides a method and apparatus for fabricating densely stacked ball-grid-array packages into a three-dimensional multi-package array. Integrated circuit packages are stacked on one another to form a module. Lead carriers provide an external point of electrical connection to buried package leads. Lead carriers are formed with apertures that partially surround each lead and electrically and thermally couple conductive elements or traces in the lead carrier to each package lead. Optionally thin layers of thermally conductive adhesive located between the lead carrier and adjacent packages facilitates the transfer of heat between packages and to the lead carrier. Lead carriers may be formed of custom flexible circuits having multiple layers of conductive material separated by a substrate to provide accurate impedance control and providing high density signal trace routing and ball-grid array connection to a printed wiring board.